

CM

WHAT IS CLAIMED IS:

1. A recombinant plant viral nucleic acid comprising a native plant viral subgenomic promoter, at least one non-native plant viral subgenomic promoter and a plant viral coat protein coding sequence, wherein said non-native plant viral subgenomic promoter is capable of initiating transcription of an adjacent nucleic acid sequence in a host plant and is incapable of recombination with the recombinant plant viral nucleic acid subgenomic promoters and said recombinant plant viral nucleic acid is capable of systemic infection in a host plant.
2. The recombinant plant viral nucleic acid of claim 1 which further comprises at least one non-native nucleic acid sequence adjacent a subgenomic promoter, said sequence capable of transcription in a host plant to produce a cellular product.
3. The recombinant plant viral nucleic acid of claim 1 wherein the plant viral coat protein coding sequence is adjacent one non-native plant viral subgenomic promoter.
4. The recombinant plant viral nucleic acid of claim 3 wherein said plant viral coat protein coding sequence is a non-native coding sequence.
5. The recombinant plant viral nucleic acid of claim 3 wherein said plant viral coat protein coding sequence is a native coding sequence.
6. The recombinant plant viral nucleic acid of claim 1 wherein the plant viral coat protein coding

NP
NK

113

CUS

sequence is adjacent said native plant viral subgenomic promoter.

7. The recombinant plant viral nucleic acid of claim 6 wherein said plant viral coat protein coding sequence is a non-native coding sequence.

8. The recombinant plant viral nucleic acid of claim 6 wherein said plant viral coat protein coding sequence is a native coding sequence.

9. The recombinant plant viral nucleic acid of claim 2 wherein the plant viral coat protein coding sequence is adjacent one non-native plant viral subgenomic promoter.

10. The recombinant plant viral nucleic acid of claim 9 wherein said plant viral coat protein coding sequence is a non-native coding sequence.

11. The recombinant plant viral nucleic acid of claim 9 wherein said plant viral coat protein coding sequence is a native coding sequence.

12. The recombinant plant viral nucleic acid of claim 2 wherein the plant viral coat protein coding sequence is adjacent said native plant viral subgenomic promoter.

13. The recombinant plant viral nucleic acid of claim 12 wherein said plant viral coat protein coding sequence is a non-native coding sequence.

14. The recombinant plant viral nucleic acid of claim 12 wherein said plant viral coat protein coding sequence is a native coding sequence.

15. The recombinant plant viral nucleic acid of claim 9 wherein one non-native nucleic acid sequence is adjacent said native plant viral subgenomic promoter.

16. The recombinant plant viral nucleic acid of claim 10 wherein one non-native nucleic acid sequence is adjacent said native plant viral subgenomic promoter.

17. The recombinant plant viral nucleic acid of claim 11 wherein one non-native nucleic acid sequence is adjacent said native plant viral subgenomic promoter.

18. A recombinant plant viral nucleic acid comprising a native plant viral subgenomic promoter, at least one non-native plant viral subgenomic promoter, a plant viral coat protein coding sequence, and at least one non-native nucleic acid sequence, wherein said non-native plant viral subgenomic promoter is incapable of initiating transcription of an adjacent nucleic acid sequence in a host plant and is incapable of recombination with the recombinant plant viral nucleic acid subgenomic promoters, said recombinant plant viral nucleic acid is capable of systemic infection in a host plant, said plant viral coat protein coding sequence is selected from the group consisting of a native plant viral coat protein coding sequence and a non-native plant viral coat protein coding sequence, and said plant viral coat

protein coding sequence is adjacent one of the recombinant plant viral nucleic acid subgenomic promoters and said non-native nucleic acid sequence is adjacent one of the other plant viral subgenomic promoter.

19. The recombinant plant viral nucleic acid of claim 18 wherein the plant viral coat protein coding sequence is adjacent one non-native plant viral subgenomic promoter.

20. The recombinant plant viral nucleic acid of claim 19 wherein said plant viral coat protein coding sequence is a non-native coding sequence.

21. The recombinant plant viral nucleic acid of claim 19 wherein said plant viral coat protein coding sequence is a native coding sequence.

22. The recombinant plant viral nucleic acid of claim 18 wherein the plant viral coat protein coding sequence is adjacent said native plant viral subgenomic promoter.

23. The recombinant plant viral nucleic acid of claim 22 wherein said plant viral coat protein coding sequence is a non-native coding sequence.

24. The recombinant plant viral nucleic acid of claim 22 wherein said plant viral coat protein coding sequence is a native coding sequence.

25. The recombinant plant viral nucleic acid of claim 18 which comprises two or more non-native plant viral subgenomic promoters.

26. The recombinant plant viral nucleic acid of claim 25 which comprises two or more non-native nucleic acid sequence adjacent subgenomic promoters.

27. A host plant infected by the recombinant plant viral nucleic acid of claim 2.

28. A host plant infected by the recombinant plant viral nucleic acid of claim 9.

29. A host plant infected by the recombinant plant viral nucleic acid of claim 12.

30. A host plant infected by the recombinant plant viral nucleic acid of claim 18.

31. A host plant infected by the recombinant plant viral nucleic acid of claim 19.

32. A host plant infected by the recombinant plant viral nucleic acid of claim 22.

33. A host plant infected by the recombinant plant viral nucleic acid of claim 26.

34. A process for producing a product in a host plant which comprises infecting a host plant with the recombinant plant viral nucleic acid of claim 2, and growing said infected plant for the production of said product.

35. The process of claim 34 which further comprises isolation of the product.

36. A process for producing a product in a host plant which comprises infecting a host plant with the recombinant plant viral nucleic acid of claim 18, and growing said infected plant for the production of said product.

37. The process of claim 36 which further comprises isolation of the product.

38. A process for producing a product in a host plant which comprises infecting a host plant with the recombinant plant viral nucleic acid of claim 26, and growing said infected plant for the production of said product.

39. The process of claim 38 which further comprises isolation of the product.

40. The process of claim 38 wherein said product is a biologically active polypeptide or protein.

41. The process of claim 40 wherein said product is selected from the group consisting of IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, EPO, G-CSF, GM-CSF, hPG-CSF, M-CSF, Factor VIII, Factor IX, tPA, hGH, receptors, receptor antagonists, antibodies, neuro-polypeptides, melanin, insulin, vaccines and the like.

42. The process of claim 38 wherein said product is biologically inactive polypeptide or protein resulting from anti-sense RNA expression.

HO

43. A biologically functional plasmid or viral DNA vector having the characteristics of TB2 (ATCC No. 75280) and mutants thereof.

DR

44. A biologically functional plasmid or viral DNA vector having the characteristics of TBU5 and mutants thereof.

W/

EL